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EXAMINER	
GREENE, DANIEL LAWSON	
ART UNIT	PAPER NUMBER
3694	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

USpatents@armstrongteasdale.com

Office Action Summary	Application No.	Applicant(s)	
	10/065,772	CHOE ET AL.	
	Examiner	Art Unit	
	DANIEL L. GREENE	3694	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 April 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-7,9,10 and 20-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-7,9,10 and 20-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/15/2008 has been entered.

2. Claims 1, 3-7, 9, 10 and 20-22 are pending and have been examined on the merits. Only Claim 1 has been amended in said 4/14/2008 submission.

Response to Arguments

3. Applicant's invention is directed towards utilizing orifices to control the flow rate of main coolant through individual groups of fuel assemblies located in a nuclear reactor core. The practice of using an orifice to control the flow of a fluid is ancient beyond measure; however such use has been well documented in the nuclear field for many years. At its most basic premise, a smaller orifice in the flow path of a fluid means larger restriction of and therefore less flow, while conversely, a larger orifice and less restriction means more flow. Placing an orifice in the path of fluid flow causes restriction to the flow of said fluid. Placing more than one orifice in the flow path of a fluid obviously adds more restriction to the path of fluid flow (based on the plethora of thermo mechanical characteristics of the fluid and its operating environment) and hence even less flow of the fluid through said path. Resort may be had to any of Crowther

3,147,191 (1964) (See, for example, Col. 13, lines 52-54, etc.), Froot 3,225,749 (1965) (Col. 1 lines 1-15, etc.), Frisch 3,389,056 (1968) (Col 1. lines 1-10, etc.), Geiger et al. 4,334,554 (1982) (See, for example, the TITLE, Abstract, Col. 1-20, etc.) as well as any of the other already cited and explained references Patterson (1975), Atherton et al. (1975), Johansson et al. (1980), Yasuyuki (1994), etc. to show this to be true and how the nuclear field has utilized this basic knowledge to their advantage. Any of Patterson, Yasuyuki, Congdon et al., etc. set forth teachings in setting/choosing distinct flow rates through distinct regions of a nuclear reactor for a plethora of reasons including fuel burnup rate, neutron conservation, etc. Resort may be had to any of Carelli (1986), Congdon et al. (1992), Church (1993) to show how the nuclear field explored different designs and locations (attached to or positioned within the inlets of the fuel assemblies) of orifices to control flow in both steam generators as well as within the nuclear reactor itself. Since a BWR (Boling Water Reactor) is in effect a steam generator, the teachings are critically pertinent.

4. One thing these references have in common is that they teach various motivations for utilizing orifices for controlling the flow rate of fluid through a pipe. Many of the references are directed specifically towards controlling the flow of fluid through fuel assemblies in a nuclear core and specifically address the motivations for controlling flow through both individual and groups of fuel assemblies in particular locations within particular nuclear reactors based on a variety of factors including fuel assembly age, enrichment, neutron conservation, peak power performance, neutron flux management, etc.

5. A review of applicant's inventive concept including the totality of the specification, drawings and arguments proffered during the prosecution of the instant application clearly

indicates that applicant has not progressed the field of nuclear power in any patentably distinct manner.

6. If applicant is of the opinion that having an orifice AND a restrictive device is patentably distinct from the references, then resort may be had to any of Patterson, Atherton, Church, etc, to show that it is OLD AND WELL KNOWN to do such , as well as case law to show that such a perception is simply not tenable.

Note that MPEP 2144 states that a making separable, rearrangement of parts, duplication of parts and/or changing the shape does not make an invention patentably distinct. See *In re Dulberg,* 289 F.2d 522, 523, 129 USPQ 348, 349 (CCPA 1961), *In re Japikse,* 181 F.2d 1019 86 USPQ 70 (CCPA 1950) and *In re Kuhle,* 526 F.2d 553, 188 USPQ 7 (CCPA 1975), *In re Harza,* 274 F.2d 669, 124 USPQ 378 (CCPA 1960), *In re Dailey,* 357 F.2d 669, 149 USPQ 47 (CCPA 1966)

7. If applicant is of the opinion that having the restrictive device "detachably coupled" is patentable a patentable feature, resort may be had to many of the references above (Geiger et al., etc) to show it is notoriously old and well known to have such. Further, there is ABSOLUTELY NO WAY of preventing the detachment of any of the prior art restrictive devices by for example, cutting, sawing, welding, etc. Further resort may be had to case law as well to show that such a conclusion is also untenable.

In re Dulberg, 129 USPQ 348, (CCPA 1961)

> "It has been held that constructing a formerly integral structure in various elements involves only routine skill in the art "

8. If applicant is of the opinion that a patentable feature lies within varying either the size of the orifice or the sizes of the orifices in the restrictive devices, again resort may be had to the references of record as well as case law to show that such is also untenable.

> It is well settled that optimizing a result effective variable is well within the expected ability of a person of ordinary skill in the subject art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980), In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1955).

In this case it would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the sizes of the respective orifices to achieve a desired result (i.e. a specific flow rate) as taught by a majority of the references as well as APA.

9. Applicant's arguments filed 4/15/2008 have been fully considered but they are not persuasive.

A. Applicant argues on page 7, last paragraph:

> "What the Office Action is referring to as **three core flow regions is just three different fuel assemblies within one core region located between A and B as shown in Figure 1.** Applicants also submit that because the 4/3/07 Office Action stipulates that the flow through each radial blanket fuel assembly is different, Patterson teaches away from the recitation of Claim 1 of the present application that each main coolant flow channel have a means of controlling a flow of coolant through said main coolant flow channel so that the flow of coolant through the main coolant flow channels of the fuel assemblies located in a particular region are substantially the same. In addition, Applicants disagrees with the assertion at page 3 of the current Office Action that "the Examiner considers each different fuel assembly as a different region within the region between A and B." (Emphasis added)

A. Response:

It appears applicant may have misconstrued the Examiners statement about what Patterson describes. Reproduced here below:

> "First, the Examiner would like to point out that after further consideration it has been determined that Patterson does indeed set forth three core flow regions because as shown by Figure 2 below, the flow through EACH radial blanket fuel assembly the examiner has labeled as 1,

> 2 and 3 will indeed be different due to the different size of the orifice that lets water into each said fuel assembly. "

Clearly Patterson discloses three different flow rates through three different individual fuel assemblies. It must therefore be appreciated that these individual assemblies are actually part of an entire radial blanket of assemblies as evidenced by Patterson Col. 1 lines 15-25.

> "As is understood by those skilled in the art in practice, the power production in the individual radial blanket fuel assemblies can vary by a factor of three or more from location to location, depending on their distance from the center of the reactor core."

And Col. 2 lines 26-32

> "In one embodiment selectively insertable restraint assemblies having throttling means and holes are selectively positioned and added to increase the radial flow and control the position of this radial flow with respect to specific reactor **zones containing groups of shuffeable radial blanket fuel assemblies." (Emphasis added)**

Patterson is concerned with the exact same motivation as applicant, i.e. controlling flow rate through a "group" of radial fuel assemblies in particular "zones" of the core. A group requires more than one assembly and is therefore considered as disclosing "a portion of the plurality of fuel assemblies, each portion comprising more than one fuel assembly."

Applicant is reminded that the Examiner has cited particular columns and line numbers in the references as applied to the claims for the convenience of the applicant. Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim(s), other passages and figures apply as well. It is respectfully requested from the

applicant, in preparing any responses, to fully consider the reference(s) in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

Patterson is replete with motivations to control the flow rate in specific "zones" or "regions" of a nuclear reactor core and is therefore considered as disclosing the invention as claimed.

B. Applicant argues on page 8, second to last paragraph:

> "Furthcr, Patterson et al. do not describe nor suggest a fuel assembly that includes a orifice located in the coolant inlet and a restriction device detachably coupled to a lower end of the lower tie plate, with the main coolant flow channel extending from the coolant inlet through the fuel support and the lower tic plate into the fuel bundle main body. Rather, Patterson describes that flow of coolant through several blanket fuel assemblies are controlled by one restraint assembly (a flow control device), see Figure 2. The main coolant flow channel of each blanket fuel assembly does not include its own separate means of controlling the coolant flow through the channel located in the inlet of the main coolant flow channel where the means comprises a coolant orifice located in the coolant inlet and a restriction device detachably coupled to a lower end of the lower tie plate of the fuel assembly."

B. Response:

Applicant's arguments do not overcome the fact that the Examiner has clearly shown on page 10 of the 4/3/2007 Office Action, how Figure 2 of Patterson explicitly discloses a coolant "orifice" located in the coolant inlet of the main coolant flow channel and a "restrictive device" coupled to the lower end of the lower "tie plate" of the fuel rod.

It appears applicant may be attempting to limit what Patterson discloses, however the Examiner has clearly set forth how the Patterson reference is to be understood.

> "While patent drawings are not drawn to scale, relationships clearly shown in the drawings of a reference patent cannot be disregarded in determining the patentability of claims."
> See In re Mraz, 59 CCPA 866, 455 F.2d 1069, 173 USPQ 25 (1972).

C. Applicant's arguments on pages 8-11 are based upon the presumptive failure of Patterson to disclose the claimed invention. Since the Examiner has clearly shown how Patterson does indeed disclose such, **said arguments are moot.**

D. Applicant's arguments on pages 11-16 regarding section 9 of the previous Office action have been considered but they are not persuasive as applicant has AGAIN failed to understand and address the rejection set forth therein.

Section 9 of said previous Office action refers back to section 16 of the 4/3/2007 Office action. (Reproduced below for applicant's convenience.)

> **"Claims 1, 3-7, 9, 10 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted Prior Art (APA) in view any of Congdon et al. Patterson or Yasuyaki and further in view of either U.S. Patent 5,384,814 to Matzner et al. OR U.S. Patent 5,524,031 to Kilian.**
>
> Applicant's APA substantially discloses, in paragraphs 2-8 of the specification as filed, specifically paragraph 7, applicant's invention as claimed including the use of fuel element "inlet" orifices to create different zones/regions of substantially the same flow rate, and that the main coolant flow enters the lower tie plate of the fuel assembly. Paragraph 7 explicitly sets forth "the flow enters the inlet to the fuel support. The flow then passes **through an orifice**" APA does not appear to explicitly disclose the use of more than 2 regions of different coolant

flow, or that the restriction devices are "detachably coupled" to a lower end of said lower tie plate.

Although APA does not appear to set forth more than 2 regions of flow, resort may be had to case law to show it is obvious on its face that the "Mere duplication of parts has no patentable significance unless new and unexpected result is produced "See, ***In re Harza,*** 124 USPQ 378 (CCPA 1960) In this case there is no new or unexpected result, merely the addition of another region of flow.

Any of Congdon et al. Patterson or Yasuyaki can also be relied upon to show it is well known in the nuclear art to have three or more regions of flow within a reactor.

Either Killian or Matzner can be relied upon to show it is well known in the nuclear art to detachably couple restriction devices to a lower end of the lower tie plate of a nuclear fuel assembly for the benefits of, for example, providing particulate restriction (also known in the art as filtration) to fuel assemblies that were not manufactured with such particle restriction devices thus preventing particulate from entering the fuel assemblies. Since these particulate restriction devices inherently have a pressure drop associated with their installation, they inherently control a flow of coolant within the main coolant flow channel.
At the time of the invention it would have been obvious to one of ordinary skill in the art to have included the debris filters set forth in either Kilian or Matzner in the fuel assemblies of the APA for the benefits of preventing debris from entering said fuel assemblies and thus preventing the ensuing damage that said debris would cause as well as the other benefits disclosed therein.

The limitations of the dependent claims are set forth in the rejection of corresponding parts above wherein at least APA, Congdon et al. Patterson AND Yasuyaki all set forth the use of different sized orifices to control flow to different regions of the core and which orifices are used to control which region as set forth in the claims.

Applicant continues to attack each reference individually without giving proper consideration to the manner in which the Examiner relied upon their TEACHINGS and then combined them to show the claimed invention is indeed obvious in light of the art of references.

Applicant's arguments should be directed towards the references as applied by the EXAMINER, and set forth in the Office action.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant's arguments are unpersuasive as applicant has not shown that the references do not teach what the examiner has stated they teach, nor has applicant shown that the examiner's reasoning for and manner of combining the teachings of the references is improper or invalid.

Applicant's arguments do not comply with 37 CFR 1.111(c) because they do not clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. Further, they do not show how the amendments avoid such references or objections.

E. Applicant argues on page 16, second to last paragraph and page 17, 1st paragraph:

> "Congdon et al. do not describe nor suggest a nuclear reactor core as recited in Claim 1. Particularly, Congdon et al. do not describe nor suggest a each main coolant flow channel of fuel assembly includes a means of controlling a flow of coolant through the main coolant flow channel so that the flow of coolant through the main coolant flow channels of the fuel assemblies located in a particular region are substantially the same, and that the coolant flow through the

fuel assemblies in each region is different from the coolant flow through the fuel assemblies in each other region."

"Particularly, the small-orificed stubs and the peripheral stubs define 1 inch apertures through the core support plate, while the large-orificed stubs define 2 inch apertures through the core support plate. **Applicants submit that because both the small-orificed stubs and the peripheral stubs define 1 inch apertures, the coolant flow in those regions will inherently be the same.** Therefore, Congdon el al. does not describe nor suggest that the coolant flow through the fuel assemblies in each region is different from the coolant flow through the fuel assemblies in each other region. As admitted by the Office Action at page 3, Congdon et al. do not describe nor suggest a restriction device detachably coupled to the lower tie plate in addition to the orificed-stub. (Emphasis added)

E. Response:

Congdon Figure 2 and associated text, clearly sets forth at least three regions with different flow rates. Further Congdon clearly TEACHES in Col. 5 lines 14-40 of other arrangements of flow rates and orifices.

Applicant's allegation of inherency emphasized above is incorrect for at least the following reasons.

1. Congdon specifically sets forth 3 different regions, small orificed stubs, large orificed stubs and peripheral stubs. If the peripheral stubs were the same as the small orificed stubs, then there would be no reason to explicitly make a point to differentiate between them.

2. Flow in the reactor is from feedwater line 122 down and up through the fuel assemblies. Since reactor coolant FIRST comes in contact with the Peripheral assemblies, coolant is diverted into said assemblies and thus away from the small orificed stub tubes. Accordingly there will be less water to flow through the small orificed stub tubes and thus a different flow.

3. Fuel cells in the peripheral location are at end of life and therefore will have less power production and therefore will have less coolant flow.

F. Applicant argues on page 16 last paragraph:

"Also, Congdon et al. do not describe nor suggest a fuel assembly that includes a coolant orifice located in the coolant inlet and a restriction device detachably coupled to a lower end of the lower tie plate. Rather, Congdon et al. describe multiple regions that include various sized orificed stubs to control the flow of coolant through the fuel assemblies."

F. Response:

Congdon does indeed clearly discloses a fuel assembly that includes a coolant orifice located in the coolant inlet in Figure 1 and associated text. See specifically items 126, 242, 244, 246, etc.

G. Applicant argues beginning on page 17:

"Matzner et al. describes a lower tie plate strainer for boiling water reactors. The strainer is a three dimensional that includes a perforated plate mounted in a three dimensional structure such as a dome, cylinder, pyramid, inverted pyramid, or corrugated construction. Matzner et al. specifically teaches that the strainer is not a restriction device and teaches away from the use of the strainer to control the flow through the fuel assembly and as such it would not be obvious to one skilled in the art to combine the teachings of Matzner et al. with the teachings of Congdon et al. to control coolant flow rate. Specifically, Matzner et al. describes at Col. 4, lines 22~28, that "as a consequence of this three dimensional grid construction, the total flow-through area of the perforations in the metal plate should be at least as great as this flow area through the bundle without this debris catcher, and does not introduce significantly additional pressure drop in the lower tie plate assembly." Also, Matzner et al, teaches that "if apparatus thus preventing debris entrainment into the fuel bundles is going to be utilized, appreciable change in overall fuel bundle pressure drop should be avoided."

"Accordingly, Applicants submit that combining the teachings of Congdon et al. with the teachings of Matzner et al. does not describe nor suggest al the recitations of independent Claim 1 of the present application.

G. Response:

As applicant states, the art clearly discloses to "...not introduce significantly additional pressure drop". To not introduce significant additional pressure drop means that there inherently is at least some amount of pressure drop, i.e. a restriction in flow. There is no physical manner of preventing some coolant flow restriction through the device. That would go against the laws of thermodynamics and fluid flow. Regardless there will be at least "some" form of coolant flow restriction by the Matzner device, no matter how small. Accordingly, when adjusting coolant flow through a fuel assembly, one must take into account the pressure drop across any debris traps present. Further, Matzner discloses a restrictive device since it restricts the flow of particulate matter into a fuel assembly as well as some small amount of coolant flow.

H. Applicant argues on page 18:

"Kilian describes a method of retrofitting an irradiated nuclear fuel assembly that includes removing a portion of the inlet nozzle and installing a debris filter. The debris filter includes a tilter cap ring a debris filter support ring and filter media secured to the support ring. Notably, Kilian does not describe nor suggest a restriction device having a plurality of openings extending there through. Claim 1 of the present application recites "each said restriction device detachably coupled to a lower end of said lower tie plate and comprising a plurality of openings extending through said restriction device."

H. Response:

Refer to Figures 6A-C and 7A-D as well as 8 and the associated text in Col. 2 lines 58-66, Col. 3 line 53-Col. 4 line 10, etc. as evidence of a plurality of openings extending there through. Further, since Kilian is capable of being installed, then it is considered detachably coupled.

Again, Applicant's arguments are unpersuasive as applicant has not shown that the references do not teach what the examiner has stated they teach, nor has applicant shown that the examiner's reasoning for and manner of combining the teachings of the references is improper or invalid.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

10. Claims 1, 3-7, 9, 10 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patterson (U.S. Patent 3,892,625) in view of JP 06-289178 (Yasuyaki) for the reasons set forth in section 8 of the previous office action mailed 11/15/2007 which refers back to section 15 of the previous office action mailed 4/3/2007.

See the explanation set forth in section 9 above.

11. Claims 1, 3-7, 9, 10 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted Prior Art (APA) in view any of Congdon et al. Patterson or

Yasuyaki and further in view of either U.S. Patent 5,384,814 to Matzner et al. OR U.S. Patent 5,524,031 to Kilian for the reasons set forth in section 9 of the previous Office action mailed 11/15/2007 which refers back to section 16 of the previous office action mailed 4/3/2007.

See the explanation set forth in section 9 above.

12. Claims 1, 3-7, 9, 10 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Congdon et al. in view of either U.S. Patent 5,384,814 to Matzner et al. OR U.S. Patent 5,524,031 to Kilian for the reasons set forth in section 10 of the previous Office action mailed 11/15/2007 which refers back to section 17 of the previous office action mailed 4/3/2007.

See the explanation set forth in section 9 above.

13. Claims 1, 3-7, 9, 10 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over any of APA, Crowther 3,147,191 (1964) (See, for example, Col. 13, lines 52-54, etc.), Froot 3,225,749 (1965) (Col. 1 lines 1-15, etc.), Frisch 3,389,056 (1968) (Col 1. lines 1-10, etc.), Geiger et al. 4,334,554 (1982) (See, for example, the TITLE, Abstract, Col. 1-20, etc.) Patterson (1975), Atherton et al. (1975), Johansson et al. (1980), Yasuyuki (1994), in view of any of Carelli (1986), Congdon et al. (1992) or Church (1993) as well as Matzner et al. OR Kilian for the reasons set forth in sections 1-9 above.

The Examiner has shown in said sections above how the art of record clearly discloses not only applicants' invention, but the same OLD AND WELL KNOWN

motivations for arriving at the instant invention. The prior art also clearly provides teachings and motivations for making changes in orifice location, size, number, alignment, etc. required to modify flow rates for the various regions within a nuclear reactor for the various reasons and benefits set forth therewithin.

It is improper for Applicant to pick apart the references individually when the rejection is based on a combination of the teachings they disclose. See ***In re Keller***, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); and ***In re Merck & Co.,*** 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Again, it is not seen wherein applicant has arrived at an invention that is patentably distinct when viewed in light of the art of record.

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL L. GREENE whose telephone number is (571)272-6876. The examiner can normally be reached on Mon-Thur.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James P. Trammell can be reached on (571) 272-6712. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

15. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. L. G./
Examiner, Art Unit 3694
2008-06-30

/James P Trammell/
Supervisory Patent Examiner, Art Unit 3694